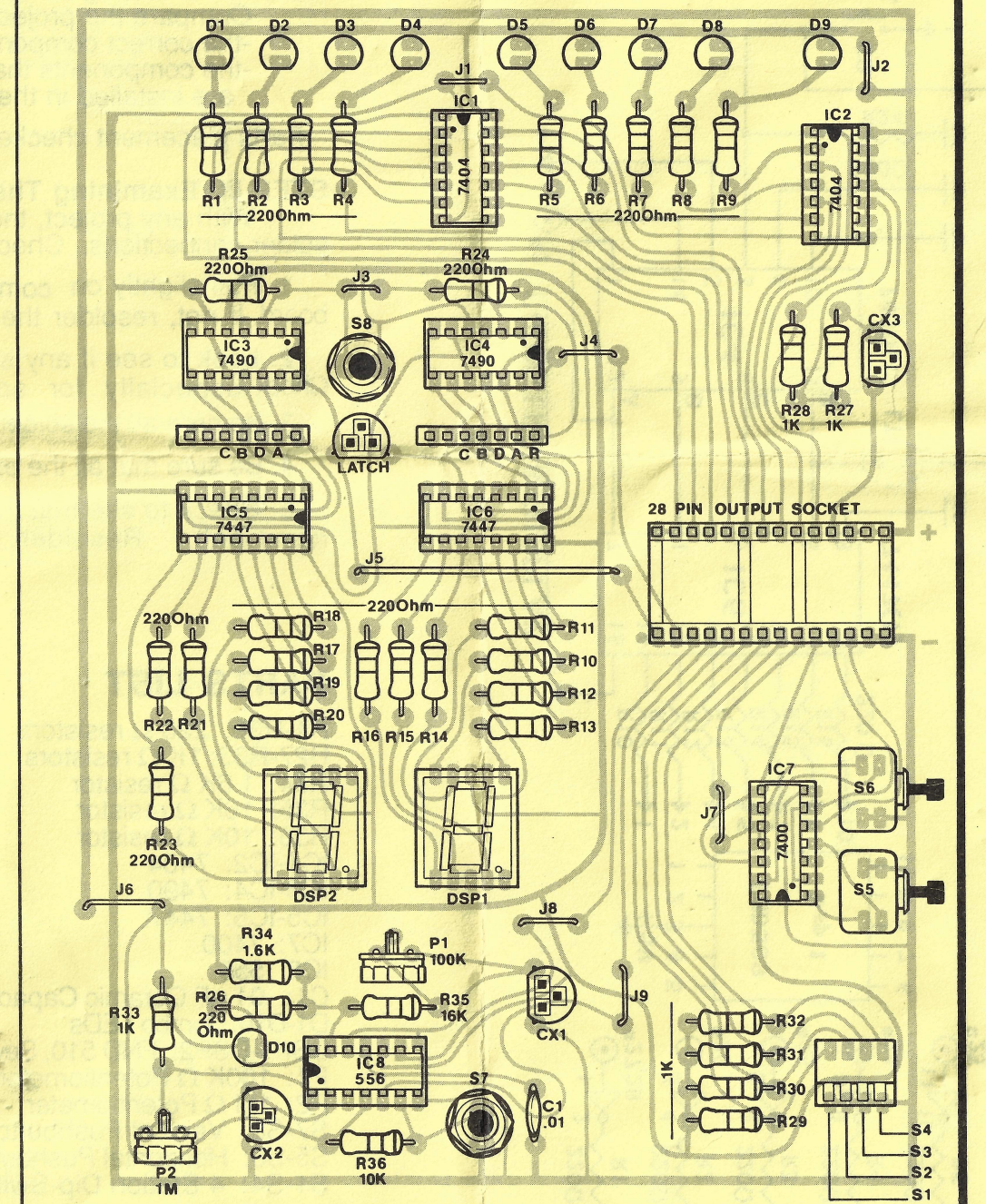
STEP BY STEP CONSTRUCTION DIAGRAM

EKI DIGITAL TRAINER 557

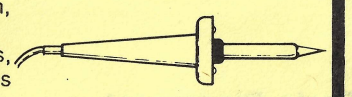
PICTORIAL DIAGRAM



STEP 1

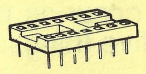
IMPORTANT INFORMATION TO HELP YOU IN SUCCESSFUL KIT BUILDING

1. Check off each step as you go.
2. Use the best quality soldering iron you can, maximum of 60 Watts.
3. Pick up the circuit board and look at both sides, notice one side has metal traces, the other does not. All electronic parts in this project will be mounted on the side that does not have metal traces. You are now ready to assemble the kit.



STEP 2

Identify the following sockets: six 14 pin IC sockets; two 16 pin IC sockets; two 7 pin single-line sockets and two 28 pin IC sockets. Mount them to the circuit board, as shown in the pictorial diagram. Bend the leads slightly to hold the sockets in place and solder carefully, avoiding solder bridges. Note: There is only a place on the board for one of the two 28 pin sockets. One of the sockets should be soldered here and the other inserted on top of it.

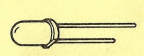


STEP 3

Identify the following resistors: R1 to R26, 220Ω (Red, Red, Brown, Gold); R27 to R33, 1KΩ (Brown, Black, Red, Gold); R34, 1.6KΩ (Brown, Blue, Red, Gold); R35, 16KΩ (Brown, Blue, Orange, Gold) and R36, 10KΩ (Brown, Black, Orange, Gold). Mount them to the circuit board as shown in the pictorial diagram. Solder and cut off excess leads.

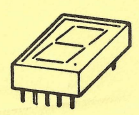
STEP 4

Identify D1 to D10, the LEDs (Red Light Emitting Diode). Find the flat edge of their heads. Mount them to the circuit board with the flat edge in the correct position, as shown in the pictorial diagram. Leave about 1/8 to 1/4 inch between the bodies of the LEDs and the surface of the circuit board. Solder and cut off excess leads. Caution: Remember not to overheat the LED by leaving the soldering iron on the leads for too long. Solder quickly and neatly.



STEP 5

Identify DSP 1 and DSP 2, the two seven-segment displays. Mount them to the circuit board with the notches at the top, as shown in the pictorial diagram. Solder each pin quickly, using a minimal amount of solder. Let each lead cool before soldering the next.



STEP 6

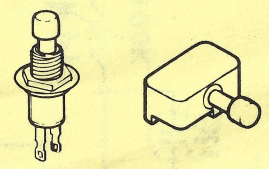
Identify CX1, CX2, CX3 and LT1, the three three-pin component sockets. Cut off the middle pin (we do not use it) and mount the sockets to the board, as shown in the pictorial diagram. Solder and cut off excess leads.

STEP 7

Identify the following potentiometers: P1, the 100KΩ and P2, the 1MΩ potentiometer. Mount them in their correct places, as shown in the pictorial diagram. Solder and cut off excess leads.

STEP 8

Identify S5 and S6, the two horizontal pushbuttons, and S7 and S8, the two vertical pushbuttons. Mount them to the circuit board, solder and cut off excess leads.

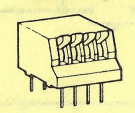


STEP 9

Identify C1, the .01 μF capacitor. This capacitor may be marked: .01, 103, 103Z or 103M. Mount it to the circuit board as shown in the pictorial diagram. Solder and cut off excess leads.

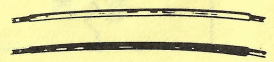
STEP 10

Identify the Single Pole/Single Throw-4 station Dip-Switch. Mount it to the circuit board as shown in the pictorial diagram. Solder and cut off excess leads.



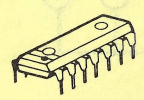
STEP 11

Using solid wire, make and install the nine jumper wires J1 to J9 as shown in the pictorial diagram. Solder and cut off excess leads.



STEP 12

Identify the following ICs: IC1 and IC2, #7404; IC3 and IC4, #7490; IC5 and IC6, #7447; IC7, #7400 and IC8, #556. Insert them into their respective sockets with the notch, dot or band in the correct direction, as shown in the pictorial diagram.



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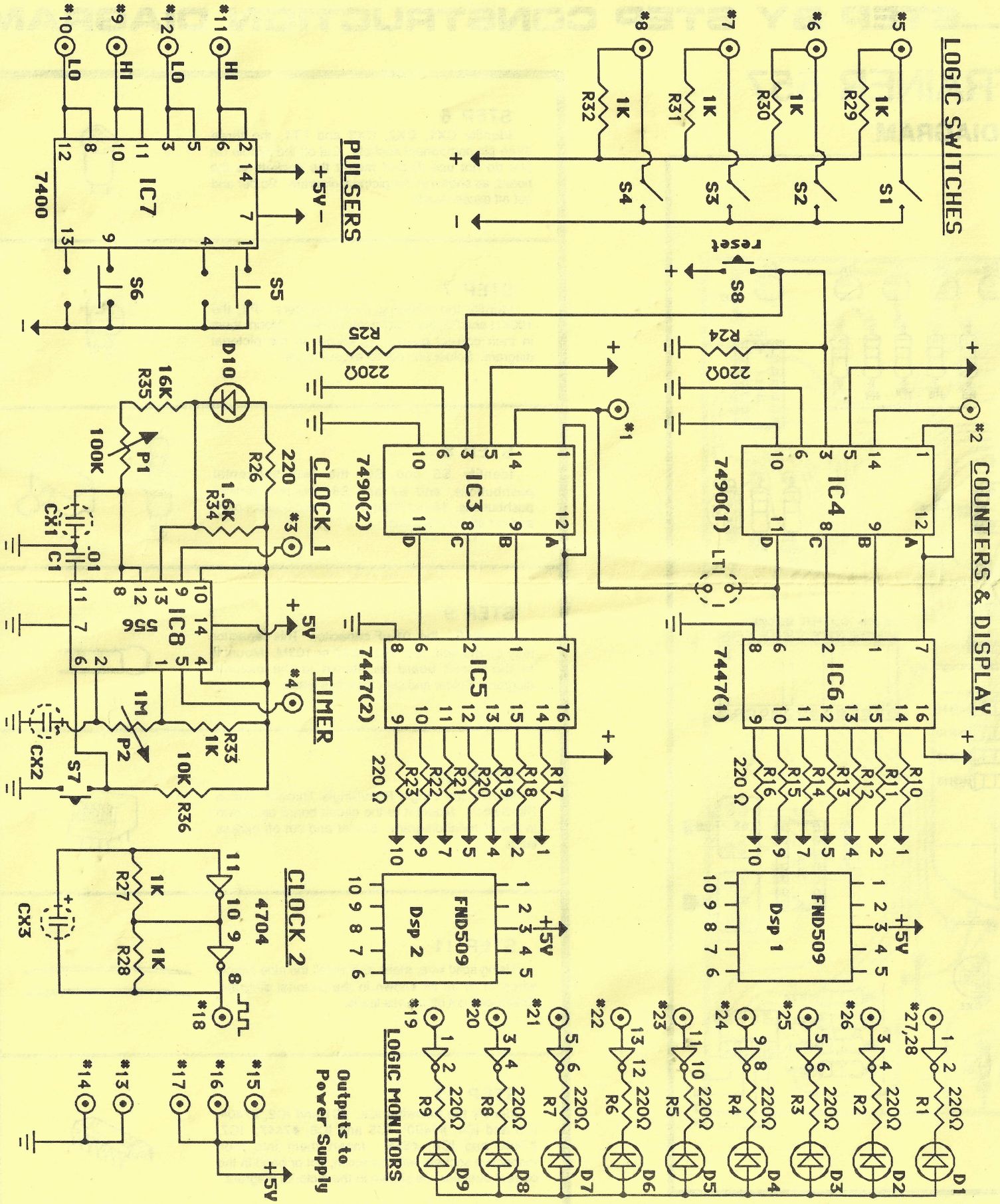

ELECTRONIC KITS INTERNATIONAL, INC.

TROUBLESHOOTING INSTRUCTIONS FOR EKI DIGITAL TRAINER 557

STEP I Checking The PC Board for Breaks

If you are using a circuit board other than the supplied by EKI, make absolutely sure there are no breaks in the copper traces. Examine each trace carefully, looking for timy "hairline" cracks that indicate a break in continuity. Often times these small breaks can be repaired simply by bridging them with solder.

PC Board checked for breaks

STEP II Looking for Incorrect Parts Placement

Compare the project carefully with the pictorial diagram in order to be sure that:
-the correct components are in the correct place.
-the components that have polarity (ICs, LEDs, Electrolytic Capacitors, Displays) are installed in the correct direction, as shown in the pictorial diagram.

Parts placement checked

STEP III Examining The Solder Connections

With any project, the most frequently occuring problem is the exintance of poor or "cold' solder connections. Check in particular for five things:

1. Pull slightly on components to be sure that all the leads are indeed soldered onto the board. If not, resolder the lead that moves.

2. Look to see if any solder bridges (piece of solder crossing copper traces) have formed. Check especially for solder bridges between pins of the ICs or LEDs.

3. Be sure all the solder connections are nice and shiny. Resolder any that are not.

4. Be sure that all the excess leads of components have been cut off and are not touching.

5. Check to see that the solder has flowed into a smooth puddle rather than forming into a round ball. Resolder any connection that has formed into a ball.

PARTS LIST

R1-R26: 220 Ω resistors
R27-R33: 1K Ω resistors
R34: 1.6K Ω resistor
R35: 16K Ω resistor
R36: 10K Ω resistor
IC1-IC2: 7404
IC3-IC4: 7490
IC5-IC6: 7447
IC7: 7400
IC8: 556
C1: .01 µF Ceramic Capacitor
D1-D10: Jumbo LEDs
DSP1-DSP2: FND 510, Seven-segment Display
P1: 100K Ω Potentiometer
P2: 1M Ω Potentiometer
S7-S8: Vertical Pushbutton
S5-S6: Horizontal Pushbutton
S1-S4: 4 Station Dip-Switch

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